UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,218	09/19/2005	Ilias Manettas	2003P00534WOUS	1364

46726 7590 03/04/2009

BSH HOME APPLIANCES CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
100 BOSCH BOULEVARD
NEW BERN, NC 28562

EXAMINER	
RALIS, STEPHEN J	

ART UNIT	PAPER NUMBER
3742	

MAIL DATE	DELIVERY MODE
03/04/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/550,218	MANETTAS ET AL.	
	Examiner	Art Unit	
	STEPHEN J. RALIS	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 September 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Applicant is respectfully requested to provide a location within the disclosure to support any further amendments to the claims due to when filing an amendment an applicant should show support in the original disclosure for new or amended claims. See MPEP § 714.02 and § 2163.06 ("Applicant should specifically point out the support for any amendments made to the disclosure.").

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 April 2008 has been entered.

Response to Arguments

4. Applicant's arguments, see pages 5-7, filed 21 April 2008, with respect to the rejection(s) of claim(s) 12-26 under 35 U.S.C. 102(b) and 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of

Zangari et al. (U.S. Publication No. 2003/0033822), Chodacki et al. (U.S. Publication No. 2003/0164368) and Hickl et al. (U.S. Patent No. 5,416,300) as set forth below.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the generating said pulse-duty ratio as a decreasing step function of said recorded voltage amplitude; forming at least two discrete values for said step function in a predetermined permissible range of fluctuation of said voltage amplitude; dividing a value range of said voltage amplitude into a plurality of intervals, for each said interval assigning a fixed pulse-duty ratio and providing a ratio of upper to lower limit of each interval of between 1.1 and 1.2; assigning a pulse-duty ratio of 1 to voltage amplitudes below at least 150 VAC; and assigning a pulse-duty ratio of 1 to voltage amplitudes below at least 165 VAC (claims 16-18 and 20-26) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 12-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In the instant invention, the examiner can find no disclosure utilizing a "voltage amplitude" of a supply voltage as well as values being determined based on a voltage amplitude. The examiner can only find disclosure to the "voltage value" being used. Therefore, the recitation to "a voltage amplitude" is deemed new matter.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 13-17 and 20-23 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 13 and 20 recite the limitation "generating said pulse-duty ratio as a decreasing step function of said recorded amplitude voltage" and variations thereof. It is unclear and uncertain to the examiner to what exact a "decreasing step function of the said recorded voltage amplitude" is and how it correlates to the generation of "said pulse-duty ratio. Therefore, the recitation to limitation "generating said pulse-duty ratio as a decreasing step function of said recorded amplitude voltage" is deemed indefinite and further clarification is required. The claims were examined as best understood

Claims 15 and 23 recite the limitation "said intervals" in line 3. There is insufficient antecedent basis for this limitation in the claim. Furthermore, Claims 15 and 23 further recite the limitation "each interval" in line 4. It is unclear and uncertain to which interval this is in relationship to "a plurality of intervals" and "said interval" previous recited. Further clarification is required.

Claims 16, 17, 24 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: The preceding claims 13 and 19 recite the limitation "a voltage amplitude" in the

singular. Claims 16, 17, 24 and 25 recite the limitation "voltage amplitudes". It is unclear and uncertain to the examiner the relationship between the singular "voltage amplitude" and the "voltage amplitudes". Further clarification is required provide a relationship between the two limitations.

In general, the claims are replete with such 35 U.S.C. 112, second paragraph issues. The above notes are exemplary with respect to all of the 35 U.S.C. 112, second paragraph rejections present in the instant case, all claims must be carefully reviewed and appropriate corrections should be made in response to this rejection.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 12, 18, 19 and 26 rejected under 35 U.S.C. 103(a) as being unpatentable over Zangari et al. (U.S. Publication No. 2003/0033822) in view of Chodacki et al. (U.S. Publication No. 2003/0164368).

Zangari et al. discloses a method for operating a defroster heater (47) that defrosts an evaporator of a refrigeration device (Abstract; pages 1-2; paragraph 9; page 2, paragraph 22; page 3, paragraphs 25-27; see Figures 6-8C), comprising: recording a voltage amplitude of a supply voltage for the defroster heater (pages 1-2; paragraph 9; page 3, paragraph 26); generating a pulsed supply current for the defroster heater (the operation ON/OFF of the defrost heater 47 by the same circuit 51; page 2, paragraph 22; see Figure 6) and supplying the defroster heater with the pulsed supply current for a fixed heating interval (when the same circuit 51 is activated/closed by the driver/microprocessor 85).

With respect to the limitation of claim 19, Zangari et al. discloses a circuit breaker (circuit 51) that is activated by a control signal (driver/microprocessor 85) for supply a current feed to the defroster heater (47).

Zangari et al. disclose all of the limitations of the claimed invention, as previously set forth, except for generating a pulse-duty ratio of the pulsed supply current based upon the recorded voltage amplitude; and the fixed heating interval including a substantial number of cycles of an alternating current provided by the voltage supply.

However, generating a pulse-duty ratio of the pulsed supply current based upon the recorded voltage amplitude is known in the art. Chodacki et al., for example, teach the recording of a voltage amplitude of a power source to a resistive heating element and generating a pulse-duty ratio of a pulsed supply current based upon the amplitude of the recorded voltage amplitude (page 3, paragraphs 24, 27-28; page 4, paragraph 34 – page 5, paragraph 41; see Figures 1, 2). In addition, Chodacki et al. teach the fixed heating interval including a substantial number of cycles of an alternating current provided by the voltage supply (page 4, paragraph 34 – page 5, paragraph 41). Chodacki et al. further teach the advantage of such a configuration provides a means to increase the operational life of the resistance heating element and reduce hardware requirements as well as associated costs such as manufacturing (page 5, paragraph 43). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the controller having the voltage amplitude of the power supply being input thereto of Zangari et al. with the utilization of the amplitude of voltage of the power supply input to the controller and use thereof to control the pulse-duty ratio

of the pulsed current supply of Chodacki et al. in order to provides a means to increase the operational life of the resistance heating element and reduce hardware requirements as well as associated costs such as manufacturing.

13. Claims 13-17 and 20-25 rejected under 35 U.S.C. 103(a), as best understood, as being unpatentable over Zangari et al. (U.S. Publication No. 2003/0033822) in view of Chodacki et al. (U.S. Publication No. 2003/0164368) as applied to claims 12, 18, 19 and 26 above, and further in view of Hickl et al. (U.S. Patent No. 5,416,300).

Zangari et al. in view of Chodacki et al. discloses all of the claimed limitations, as previously set forth, except for generating the pulse-duty ratio as a decreasing step function of the recorded voltage amplitude; forming at least two discrete values for the step function in a predetermined permissible range of fluctuation of the voltage amplitude; dividing a value range of the voltage amplitude into a plurality of intervals, for each the interval assigning a fixed pulse-duty ratio and providing a ratio of upper to lower limit of each interval of between 1.1 and 1.2; assigning a pulse-duty ratio of 1 to voltage amplitudes below at least 150 VAC; and assigning a pulse-duty ratio of 1 to voltage amplitudes below at least 165 VAC.

However, generating the pulse-duty ratio as a decreasing step function of the recorded voltage amplitude; forming at least two discrete values for the step function in a predetermined permissible range of fluctuation of the voltage amplitude; dividing a value range of the voltage amplitude into a plurality of intervals, for each the interval assigning a fixed pulse-duty ratio and providing a ratio of upper to lower limit of each

interval of between 1.1 and 1.2 is known in the art. Hickl et al., for example teach generating the pulse-duty ratio as a decreasing step function of the recorded voltage amplitude (Abstract; column 2, line 49 – column 3, line 64; see Figures 1, 2); forming at least two discrete values for the step function in a predetermined permissible range of fluctuation of the voltage amplitude (see Figure 2); dividing a value range of the voltage amplitude into a plurality of intervals (see Figure 2). Hickl et al. further teach the advantage of such a configuration provides a means to remove the requirements of transformers, thyristors, interference suppression means for using various higher level power supplies, thereby reducing cost and space required for the utilization of different voltage power source (column 1, line 29 – column 2, line 29).

In addition, Hickl et al. teach for each of the intervals assigning a fixed pulse-duty ratio and providing a ratio of upper to lower limit of each interval of between 1.2 and 1.7 (1^{st} region – 1.4/0.85 ≈ 1.65; 2^{nd} region – 1.15/0.93 ≈ 1.24; 3^{rd} region – 1.1/.9 ≈ 1.22; 4^{th} region – 1.08/ 0.87 ≈ 1.24; column 6, lines 33-57; see Figure 2). Furthermore, Hickl et al. teach assigning a power output ratio in which the keying ratio is approximately 1.03 for 165 VAC and approximately 0.81 for 150 VAC (see Figure 2)

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Zangari et al. in view of Chodacki et al. with the keyed ratio of input voltages of Hickl et al. in order to provide a means to remove the requirements of transformers, thyristors, interference suppression means for using various higher level power supplies, thereby reducing cost and space required for the utilization of different voltage power source. To provide each of the intervals assigning a

fixed pulse-duty ratio and providing a ratio of upper to lower limit of each interval of between 1.1 and 1.2 would have been a mere engineering expediency as Hickl et al. clearly teaches the use of different circuit components to attain a certain profile. Similarly, it would have further been obvious to one of ordinary skill in the art at the time of the invention was made to make each of the intervals assigning a fixed pulse-duty ratio and providing a ratio of upper to lower limit of each interval of between 1.1 and 1.2, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In addition, to provide a pulse-duty ratio of 1 to voltage amplitudes below at least 150 VAC and below at least 165 VAC would have been a mere engineering expediency as Hickl et al. clearly teaches the use of different circuit components to attain a certain keyed ratio duty cycle. It would have further been obvious to one of ordinary skill in the art at the time of the invention was made to make a pulse-duty ratio of 1 to voltage amplitudes below at least 150 VAC and below at least 165 VAC, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Prior Art

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Publication No. 2002/0030048 to Ziaimehr et al. is a teaching of utilizing the measured voltage of a power supply to control a heater.

U.S. Patent No. 4,432,211 to Oishi et al. is a teaching of a defrosting apparatus utilizing a current detected from the power supply to control a heater.

Japanese Publication No. JP 54101533 A to Fujimoto et al. is another teaching of a teaching of a defrosting apparatus utilizing a current detected from the power supply to control a heater.

U.S. Patent No. 4,937,600 to Hirabayashi et al. is a teaching of utilizing a measured voltage of a power supply and controlling the duty-cycle dependent on the information provide by the voltage measurement.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN J. RALIS whose telephone number is (571)272-6227. The examiner can normally be reached on Monday - Friday, 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on 571-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stephen J Ralis/
Examiner, Art Unit 3742

Stephen J Ralis
Examiner
Art Unit 3742

SJR
February 20, 2009